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DEALER EDITION

Electricity on the Farm

April 1929

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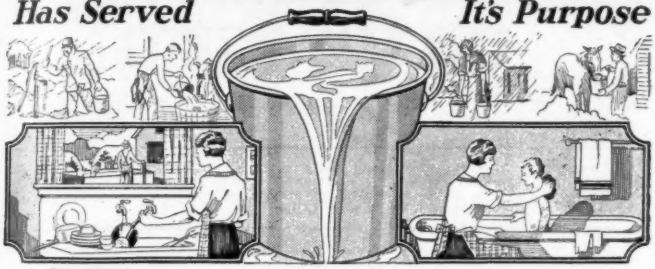


FIG. 2354

FIG. 2450

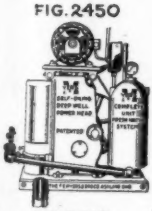
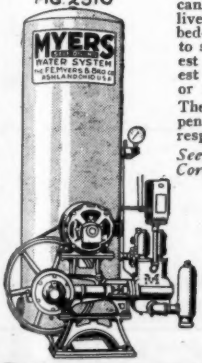


FIG. 2510



Once upon a time a "nice new water pail" was a fine gift for Mother!

AMERICAN farm women appreciate "new things" for the kitchen. But the water bucket—once a very useful article—is today practically ***a symbol of servitude!*** No matter how considerate and helpful Dad and the boys mean to be, the never-ending chore of lugging heavy pails of water from place to place falls far too often on Mother's already-burdened shoulders.

The majority of farm women carry many tons of water every year—in most cases a thoroughly needless task! Because, at relatively small cost, any farm can easily have an unfailing supply of fresh, running water—all over the house—in barns and feed lots—wherever water is required for thirsty animals, fire protection, sanitation, health, comfort and well-being.

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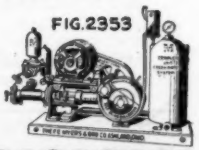

FIG. 2353

Electricity on the Farm

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We accept advertising only from concerns we believe to be absolutely reliable. Readers are requested to notify us promptly of any failure on the part of an advertiser to live up to the standards of service promised in these pages, whereupon we will immediately take suitable action.

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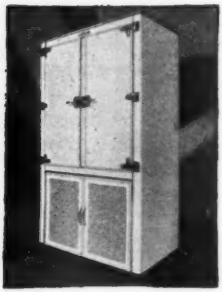

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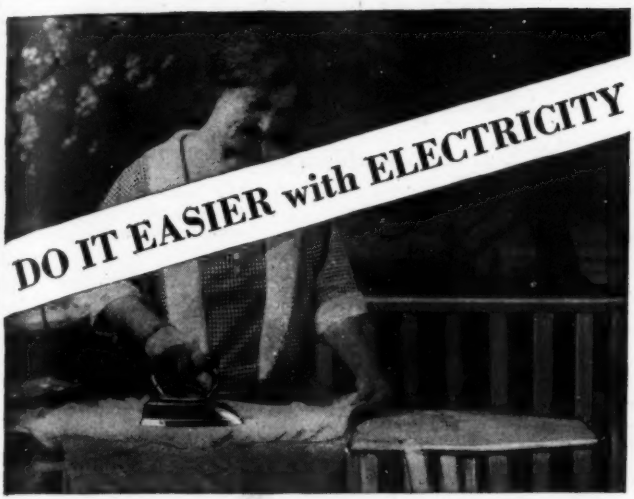

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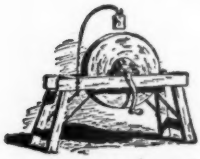

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The "SCR" is quiet at start and at full-load—and is cool-running.

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Electricity on the Farm

Vol. 2 APRIL 1929 No. 4

"—Next to Godliness!" Thus does an old adage appraise cleanliness. And it's probably right. Dr. Simon N. Patten, one of the greatest of American economists, outlined the benefits of cleanliness—and particularly that agent of cleanliness, the bath tub—in an interesting manner when he said: "Bathing has become an end in itself, and his (an Englishman's) house and daily life are pivoted around it. The bath tub is the parent of that English optimism of which the last two centuries have seen so many examples. The advent of the bath tub is an index of many other changes that tended to emphasize family life."

• • •

The introduction of the bath tub with hot and cold running water in the farm home is a bigger event than it seems, particularly where there are a lot of young folks. The old galvanized iron, or wood, tub, together with the inconvenience of heating water in the old range and then carrying it to the tub, to say nothing of emptying the water out of the tub after it was used, all contributed to the making of the weekly bath an irksome duty rather than an enjoyable task. Health and cleanliness are closely linked together, and modern medical science tells us that one of the most effective ways of checking sickness is to keep the skin clean, and the pores open. Where a modern bath tub is at hand, and plenty of hot running water within reach by merely turning the spigot, cleanliness and improved health are sure to result, to say nothing of the luxury of having bathing facilities so convenient for use at the end for a hard day in the field, or around the farm.

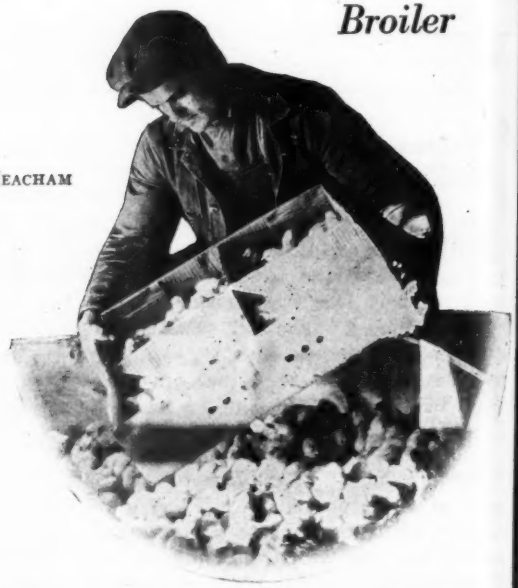
• • •

Is it any wonder that those farmers who have been fortunate enough to secure this indispensable utility are so enthusiastic in its praise!

Spare the Brooder

and Spoil the Broiler

By E. R. MEACHAM



ON a slushy day toward the last of February, I drove up to the Nordeng hatchery in De Forest, Wisconsin, to talk to Mr. Nordeng about electric brooders. I was too early to see the chicks under the brooders, of course,—the first hatch was still in his mammoth incubators—but I knew that Mr. Nordeng had used electric brooders, and that he had been working with chickens long enough to have something important to say about caring for them.

"Of course I'm interested in brooding," he said cordially when I went in. "I have to be. It doesn't do any good for me to hatch strong, sturdy baby chicks if my customers don't do their part in taking care of them.

"Just last spring a local ma bought a thousand chicks from distant hatchery. Before long began to hear rumors that thos chicks weren't getting along as w as might be. The man himse dropped in one day and I aske about them. He said they were bum lot; they never had been a good, and they were dying off li flies.

"I knew those chicks came fro a good hatchery and I offered t go out with him and look the over. He sort of poohpoohed t idea that I could do anything f him, but I went just the same. T only trouble with those chicks w crowding. They were squeez into quarters just about half lar enough.

"The man and his wife laugh

at me at first. Their two brooders were rated at 500, they said. But they began to watch for themselves, and they saw how the chicks had to crowd together to get near the warmth, how they piled upon each other, and as they grew older, how the stronger crowded the weaker ones outside."

This year that same man has already been in to Mr. Nordeng and ordered 600 chicks. He recognized that Nordeng was right in insisting that the size of the brooder has something to do with the success of the broiler.

Size of Brooder Required

In Experiment Station Bulletin No. 44 from California, the recommendation is seven square inches of hover space for each chick. A flock of 350 chickens will need a hover with an area of 7 × 350=2450 square inches. A square canopy 50 inches each way will cover 50 × 50=2500 square inches. This would be just about right.

If we have put the cart before the horse and planned the brooder first, we can work the problem out the other way. A hover 42 inches square covers an area of

42 × 42=1764 square inches
1764 ÷ 7=252.

So according to the California findings 252 chicks are enough for this size.

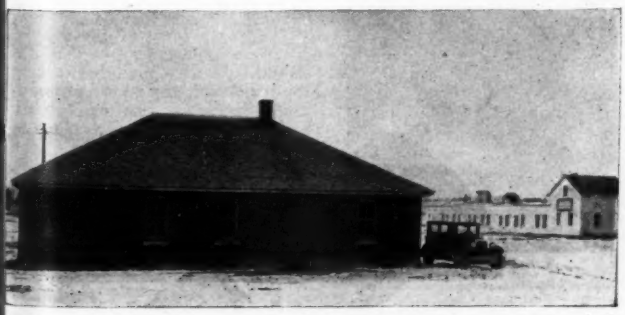
You will find it wise to check the manufacturer's rating of his brooder with these recommendations before you get your chicks and brooder together. The flock that was a comfortable fit for your hover on April first will have outgrown it by the middle of the month when the chicks have doubled in size.

"It isn't always the size of the brooder that gives us trouble though," went on Mr. Nordeng. "Last spring a customer of mine came in to say that her flock was going bad. Someone had sold her some kind of worm dope, but it was not helping them any, so I went home with her to look them over."

"What was the matter?" I asked.

"I found those chickens cheeping and trying to get around behind the brooder away from the wind that blew in under the door and swept across the floor. They weren't suffering from worms or anything else but cold. The first thing I had her do was to put up a cardboard shield or baffle to protect them from the draft. Then we considered ways of getting the house warm."

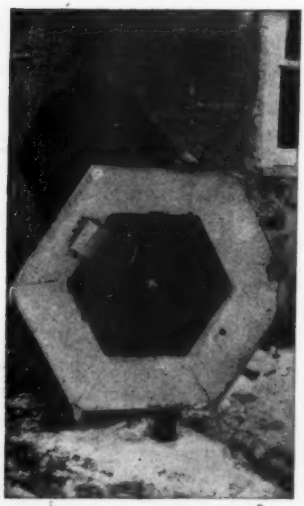
On any farm where several hundred chicks are kept during cold weather it will certainly pay to take a little extra care in providing a good snug place for them. The brooder house need not be large or expensive but it must be warm and windproof for best results.



Here's the Nordeng hatchery in DeForest, Wisconsin.

A house 10' x 12' will hold 350 chicks and that is as many as should be kept in one flock according to Farmer's Bulletin No. 1376 of the United States Department of Agriculture. The floors need special attention, for cold drafty floors are a menace to young chicks. Concrete, of course, shuts out drafts and is easy to clean, but it is very apt to be damp and cold. I believe it would be highly satisfactory where no great strength is required as in a brooder house, if, when the floor was poured, the first course were covered with a heavy insulating material such as Celotex, Insulite, or Nu-wood, a finishing coat of an inch or two would complete the job.

"Some of my customers who use electric brooders are starting the chickens right in the house," Mr. Nordeng told me. "There are few farm houses that haven't an extra room that they could use to start their chickens in. Since all they have to do is plug the cord in, it isn't any bother to set up the electric brooder. They can cover the floor with a thick layer of papers and start them off. Half the time the women have chickens in boxes around the kitchen anyway. They might just as well put them under a brooder and do it right. With cod liver oil in the rations, sunlight isn't so necessary as we used to think."



Mr. Norberg has four of these forty-two inch brooders.

A Night Light

An interesting innovation in some brooder houses is a night light that invites the chicks to come out and eat when they wake up hungry during the night. They do it and they thrive. One poultryman suggests that it seems to develop the flock as a whole better, perhaps because the weaker chicks have an uninterrupted chance at the feed while the strong sturdy chicks that have been running around all day are sleeping. Whatever the theory the fact remains that the chickens put on growth faster where they have this chance for extra food.

In spite of all that has been said and written about them, there is a great deal of misunderstanding about electric brooders. They look so simple and electric heat is so easy to apply that several manufacturers have put on the market small, cheap, and utterly unreliable machines. Some of them are little more than a metal cone with a lamp under it. The almost certain failure of these inadequate machines hinders the use of really good electric brooders, just as swindlers ruined the lightning rod business years ago.

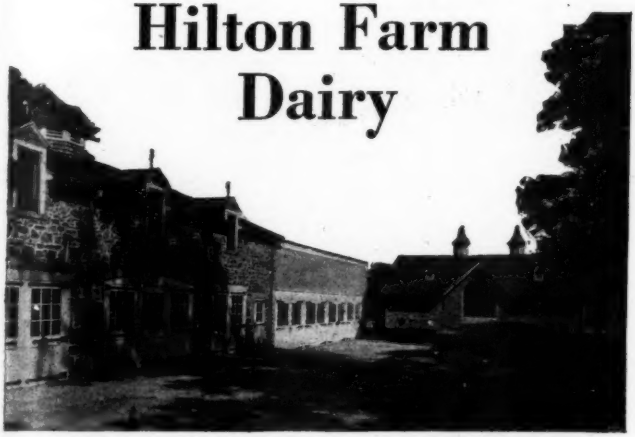
The exact form of the brooder is not so important, except that it should have a sloping roof to keep the chicks from roosting on it. The electric current supplies the heat by passing through what is known as resistance wire,—wire that so resists the flow of current that it gets hot when current is forced along it.

To provide a fairly uniform temperature under the hover without hot spots and the need of a reflector, this resistance wire must be well spread out. But it should

(*Continued on page* 30)

From Colonial Days to Modern Conveniences at the

Hilton Farm Dairy



General View Showing Part of Barns, Garages, etc., at the Hilton Farm Dairy.

THE Hilton dairy farm lies on the heights near Catonsville, Maryland, overlooking the historic and picturesque Potapsco Valley.

The original owners received their patents for the land from an English king a generation before the Revolution. They built the great stone wall with its occasional loopholes through which they shot at Indian marauders. Their children set up the pavilion in which slave auctions were held in slavery days. Today that same stone wall shuts out the north wind from a highly prized herd of registered Jerseys. The sales pavilion has been transformed into the farm office.

The present owners, A. M. and M. G. Knapp, have the same taste for pioneering ventures that led their ancestors across the sea a couple of centuries ago. In building up their excellent stock and dairy farm, they began, even ten years ago, to explore the possibilities of using electricity for power as well as light about their farm.

They were among the first in their community to install an electric refrigerator in their home.

Now electricity plays an important part in the job of producing certified milk and cream from their herd of 125 pure bred Jersey cows. It expedites their schedules and helps maintain rigid standards of sanitation.

None of the historic traditions of this colonial establishment are more romantic than their modern methods of drawing the power

for the farm jobs over little strands of copper wire from a central station many miles away.

They use it to pump water, grind feed, run the separator, operate the machine where milk bottles are thoroughly washed and sterilized, to bottle and seal the milk, and to cool it immediately after milking—then to keep it at a temperature far below that at which bacteria are active. It furnishes the power for a stationary milking machine, and a smaller portable machine. It

(*Continued on page* 40)

Five-Horsepower Motor Operating Two-Ton Ice Machine at Hilton Farm Dairy

Adequate Electric Wiring

BY W. C. BROWN and M. S. MEAKER

Engineering Department
National Lamp Works of
General Electric Company

THE first problem of farm electrification is the securing of safe, convenient wiring of ample capacity at a reasonable cost.

Every farmer should recognize that wiring is a specialized trade, and in every wiring installation he should take advantage of the experience and skill of the specialist. He should be very sure that the wire and every piece of apparatus used is furnished by a reputable manufacturer and competently installed. The following are a number of suggestions which if carried out should assure one's obtaining a really satisfactory wiring job:

Hire a competent electrical contractor to do the wiring. A permanently established local contractor should be called upon, and a contract entered into with him for the job. Usually the local power company will be glad to help in getting a satisfactory job done.

If the slightest question arises as to the choice of materials, take

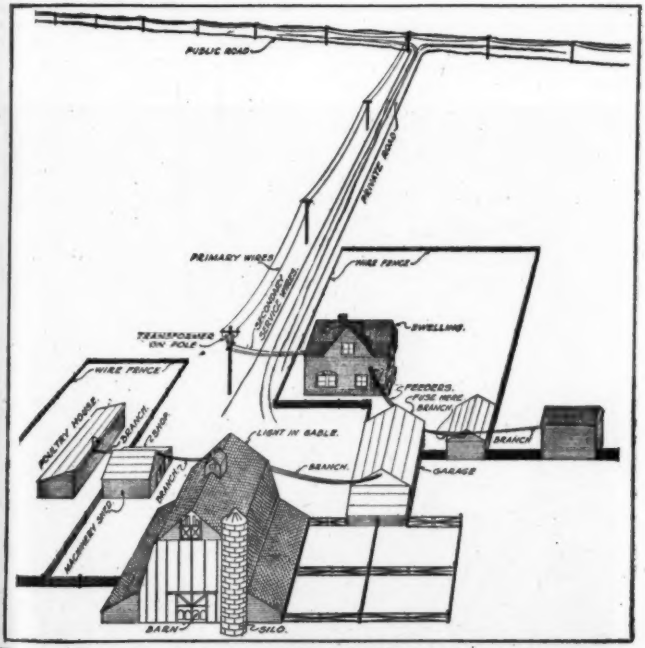


Fig. 1. Diagram of a group of farm buildings showing the arrangement of wiring to give greatest economy and adequate fuse protection.

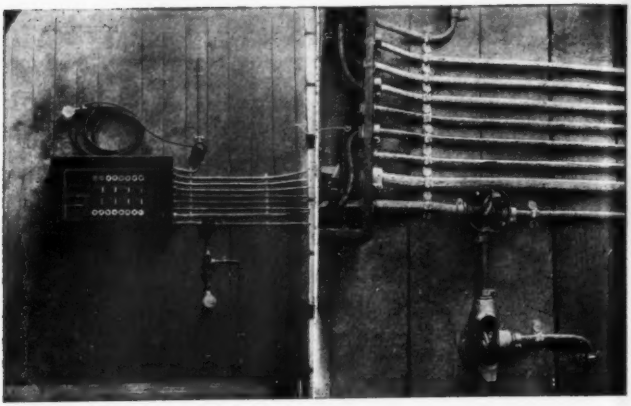


Fig. 4. A non-metallic sheathed cable installation. By running the cable along protected places it should be very satisfactory for barn wiring; in fact it should be entirely satisfactory under practically any farm conditions.

Fig. 5. Knob and tube wiring installation.

Fig. 2. A. A rigid conduit installation in a dairy barn stall. B. Rigid conduit used in wiring a wagon shed and garage.

the advice of your local power company.

The National Electric Code is in process of radical revision, and when revised should be the last word in technical advice on this subject. If the wiring installation is properly made and is not disturbed it should have an indefinite life, and should be entirely safe. We have no knowledge of any wiring system installed according to reasonable standards which has deteriorated enough to be dangerous.

If possible, get the approval of the power company before the job is paid in full, or have the job inspected during construction by local Underwriters' Insurance Inspectors.

Repair and maintain the wiring system after it goes into service, and inspect it at regular intervals. Inspection should include the equipment served by any circuit.

Various Types of Wiring

Several ways of protecting wiring are suitable for farm buildings. In one general type, metal provides the mechanical protection for the wire and its insulation. In another type, a tough and substantial non-metal insulation covers one wire or the pair. In the third type, ordinary insulated wire is kept from touching the building by the use of porcelain knobs, tubes, and cleats.

The various systems of wiring, as two-wire, three-wire, four-wire three-phase, etc., are similar, and if you take the advice of your contractor as to which system your particular installation demands it will be easy to obtain from him the fundamentals upon which it is based.

The purpose of grounding is to make it certain that the insulated wires from which you draw power within your buildings will at no time have a greater voltage on them than the normal 115 to 120 volts. Electricity is brought at a much higher voltage than this to the high-tension side of the transformer which supplies your buildings. It is possible that a severe

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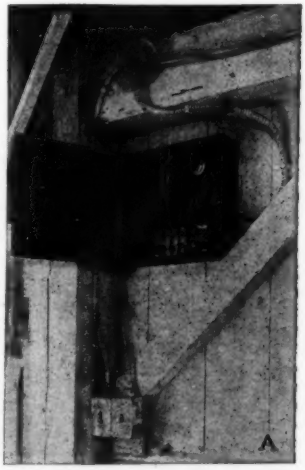

Fig. 3. Flexible conduit and fittings shown at a branch panel box.

Poultry Profits in Michigan

Electricity Revolutionized This Poultryman's Methods and Made Money for Him

WHEN Mr. and Mrs. Michael Simpson came to this country from Germany, Mr. Simpson went to work in Detroit. He made good money, but city life and factory work did not appeal to him. So he bought fifteen acres of land about twenty-five miles north of Detroit and started raising chickens.

When the farm service agent from the Detroit Edison Company first visited the place, the Simpsons owned a house, a small garage and granary combined, and a series of chicken houses arranged as units, but forming one building. Each unit held from 100-150 hens. There were 500 fine looking Leghorns in all. These 500 hens laid 50 eggs a day during the winter months.

The place was making a little money, but it was also demanding a lot of exacting work. Mrs. Simpson was carrying 25 gallons of water a day from a hand operated pump to these chickens, twice a week or so Mr. Simpson had to take his truck to town, buy his grain, wait for it to be ground, mixed and sacked, and bring it home again.

Agent Makes Suggestions

Then they decided to have electricity on their farm. The farm service agent from the power company suggested that while the contractor was wiring the place they put some lights in these chicken houses. He also suggested a 60 ampere switch, telling Mr. Simpson that it would save him money and trouble.

The Simpsons followed his advice. In the meantime they had bought more chickens, and when the lights were finally turned on, there were about 1150 hens that started eating earlier and oftener.

Last October these 1150 chickens laid an average of 600 eggs a day. In October of the year before their 500 chickens laid 50 eggs a day. The new chickens were no better than the others. They had all been carefully culled and cared for. The feed mixture was not changed. There was just this difference. In 1928 they had electric lights and more feed, and a constant supply of clean water. The result was more than 5 times as many eggs in proportion to the number of hens.

The extra eggs the Simpson's got the first month gave them a profit that paid for the electric wiring and fixtures in the house and the farm buildings.

Their electric pump provides a constant supply of fresh water. Release from carrying water to more than a thousand chickens gives them extra time and energy for the rest of the job. The electric water heaters do away with lugging kerosene around and running a chance of having the whole show go up in smoke.

When the Detroit Edison man saw the egg production zoom up from 50 to 500 chickens to 600 with 1150 chickens, he could hardly credit the facts. But they were stubbornly real. So he set himself to the consideration of further jobs electricity might take on for the Simpsons. He decided on feed grinding.

Mr. Simpson buys his feed, for he wants all of the available land on his 15 acres for summer runways and clean places for the brooders. There is no room to raise grain for winter feed. But the handling and grinding of this feed cuts into his time and profits materially. He was in the habit

of going to town for it either when he was out of grain or when the weather was bad and he could do nothing else. But lots of the farmers figured on the weather the same way, so there was often a line-up at the mill, and getting the grist was a long slow process.

The farm service agent told him that a small hammer mill and a 5 H. P. motor would do the work easier and cheaper.

He had told them that good hens would lay more eggs if they were encouraged to eat by electric lights in the otherwise dark and dreary morning hours. The hens ate and laid. So Mr. Simpson figured that the fellow knew his stuff, and he has the courage of his beliefs. He bought the mill and motor.

The new mill looked small, and the pile of corn big. But Simpson was a small man himself, and he knew the story of David and the giant wasn't all bunkum.

So he and the farm service man rigged the mill up under the stairs of the granary-garage. They cut a hole in the floor right over the hopper. They knocked the bottom out of a man-sized vinegar barrel and put it over the hole; then they connected it to the hopper of the feed grinder with an old ventilator turned upside down.

Then the power man started the mill and the cracked corn began to pour out. He changed the screen—it took less than a minute—and put in oats.

"There's no doubt about it," said Simpson. "That's the making of good chicken feed."

Now Mr. Simpson buys a ton of grain from the mill in town or maybe from a neighbor and trucks it home. There is no chance of muddy roads keeping the Simpson's from having ground feed. They always have some stored away and they can always grind a batch when the chickens need it. The sacks are stored in the granary and he dumps one into the barrel, opens the feeder on his hammer mill, and throws the switch. Then he goes on about some other job.

He is sure of a supply of fresh feed, and he knows the mix is right because he weighs it out himself.

The cost of running the feed grinder is less than the cost of grinding grain at the custom mill in town. It is so much less that the money saved in grinding alone pays the electric light and power bill each month on the Simpson place.

The Simpsons are not through yet. They say that next summer they are going to buy an electric range and an electric refrigerator. They will be able to afford both

Hopper in floor above grinder. Barrel with heads knocked out is placed over hopper when sacks of grain are being emptied into hopper.

of these household necessities because of the added profits from well-fed, well-lighted hens. These hens are contented. Laugh all you want, but they say so in definite and unmistakable language.

They are also figuring on another helper that will save a lot of hard work and pay for its keep. That is a power driven mixer to mix up the chicken feed.

It is considerable exercise to mix up grain for 1150 chickens every week. At present Simpson is mixing it on the barn floor. It can be mixed in the mill itself, but he is thinking of a mixer in addition to the grinder.

One of the leading manufacturers of grinders saw this installation one morning. That night he left for his factory, and the first thing he did when he got there was to take down from his shelf the drawings of a mixer he had designed. The same motor that runs the mill will drive the mixer.

Maybe after that the farm service man will fix them up with an electric hoist of simple and inexpensive design to lift grain from the truck into hoppers above mill.

Mr. Simpson says there is just one more job that electricity must do for that chicken farm. It must clean off the dropping boards or operate a moving one of the belt conveyor type.

Hopper, from floor above, leads directly to grinder placed below, as shown in this illustration.

Grain Grinding

By H. J. GALLAGHER,
Michigan State College
Eng. Experiment Station

ONE of the most annoying chores I experienced during eight years of dairy farm operation was having a supply of ground grain ready for feeding. The reason why this chore was especially annoying to me was because of the great amount of time and labor involved. Usually the better part of a day was consumed in bagging the grain, loading it in a wagon or car, going to the mill, waiting my turn to have it ground, then reloading, returning to the farm, and emptying into storage bins. If my time as a farmer had been worth anything, had I considered the wear and tear on the car and then added the cost for custom grinding, I know that the expense of grinding by that method would have been too costly, but I continued that practice for eight years, ever hoping that some day I could have my grain ground at the farm for a reasonable cost and with very little handling. Now five years after I have left the farm, I have had the satisfaction of installing on some other farm a small electrically operated grain grinder that receives the whole grain direct from the storage bin, grinds it and even deposits it in the feed truck in the feed alley while the owner is eating breakfast or doing some of the farm chores.

Small Units Satisfactory

Electricity has made possible the automatic operation of a number of small power machines that would be considered only toys when used with any other power. The idea of a small mill about thirty inches square, operated by a two-horse-power motor and delivering only one hundred to one hundred and twenty-five pounds of grain per hour appears rather foolish to anyone accustomed to tractor operation or the output of a custom mill, but with electric operation the output per hour and the length of time the motor runs are of minor consideration in grain grinding, providing the grain is satisfactorily ground and the cost of grinding is cheaper than any other method.

The installation referred to consists of a small hammer type mill operated by a 2 horse-power motor. This mill is mounted in a dairy barn under the floor joists above the feed alley and beneath a large grain bin in the mow above. A short chute conveys the grain by gravity to the mill, the ground grain drops into the feed truck in the alley (Figure No. 1). The feed truck holds one day's

Fig. 1. This small hammermill and 2 horse-power motor has satisfactorily ground over 2,000 bushels of oats between September, 1927, and December, 1928, for 15 milch cows at a cost of 60 cents per ton. The resultant saving over custom mill costs paid for the mill and also paid interest on the investment.

supply of feed; the grain is ground daily.

The advantages of this system of grinding are:

1. Grain is handled only from the feed truck to the manger.

2. No storage is necessary for ground grain.

3. The labor involved consists in closing the switch to start the motor and in an hour, two hours, or ten hours (depending on the size of dairy herd; ten hours would grind for about 100 cows) opening the switch to stop the motor. In the meantime the owner can be doing something else.

4. Cost: The small hammer-mill used consumes approximately 20 kilowatt hours of current per ton of oats and barley ground to medium fineness. At an average cost of custom grinding of $2.80 a ton, current at 14 cents per kilowatt hour, would give the same cost and the farmer would still be ahead the time and labor of handling his grain.

For automatic operation, the motor should be provided with an overload cut-out for protection and the mill should be one that could run idle without harm should anything obstruct the feed. The mill should also be one that would grind efficiently with straw or foreign matter in the grain.

The worth of the small electrically operated mill depends upon a good installation. If the grinding is not automatic the value of the mill is decreased, and if hand feeding is pursued such a mill may become more of a nuisance than an aid.

Essential Features

While the basement barn with the granary overhead lends itself most readily to an automatic installation, it is by no means the only one that can be satisfactorily used. Hoppers holding a supply of whole grain can be built most anywhere so that the system of daily grinding can be pursued; or the grinding may be done in some remote building and the ground grain conveyed to the feeding barn. The essential features are that the grain be ground without attendance and at low cost.

Figure No. 2 illustrates the in-

(*Continued on page* 34)

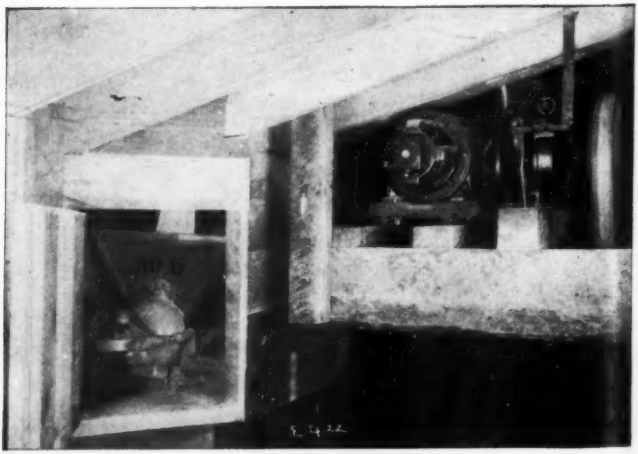

Fig. 2. A small seed mill installed for automatic operation, capacity 100 pounds per hour.

Electrical Housekeeping

Conducted by GAIL MEREDITH

How Do You Cook Potatoes?

The girl who "couldn't even boil a potato" used to be the last word in indifferent cooks. But nowadays certain disturbing discoveries in the waste of minerals and sugars and proteins we are tolerating by our methods of vegetable cookery are forcing us to view the process with new eyes. We suspect that a lot of us haven't been boiling potatoes any too skillfully ourselves.

It is this new waterless cooking that is upsetting our former ideas. Cooking vegetables in one of those specially designed cookers saves much of the minerals and proteins and vitamins that were boiled away in the water before; so does cooking them in a vessel with a tight fitting cover and a very, very little water, practically steaming them. We can try this latter method any time providing we have a kettle with a lid that fits tight enough.

Those of us who cook with electricity have a double interest in this new method of cooking. It gives us a better product—and it saves fuel.

The Home Economics Department of the University of Minnesota has been making some experiments to find out what difference it makes in the texture and taste of potatoes when they are cooked in varying amounts of water, and what difference it makes in the fuel used when the potatoes are cooked on high through the whole period, or switched to low after boiling starts.

The potatoes were all judged and scored according to definite standards of appearance and taste. The judges found no difference in the cooked potatoes, but wide variation in the current used.

When they cooked the potatoes on high for the entire period, each batch took .825 kilowatt hours. The same amount started on high, and switched to low, after the water began to boil, took .313 kilowatt hours.

Next, they set out to discover how long the potatoes would keep on boiling after the current was turned off. They found that they could turn the switch from low to off five minutes before the cooking period was over and have the potatoes just as flaky and good as those boiled on high the entire period. This brought the current down to .275 kilowatt hours, just ⅓ of the first figure.

In 30 days this amounts to a saving of 16.5 kilowatt hours on your range consumption—just by cooking potatoes in the most efficient way. If you have a family that wants potatoes boiled twice a day, you can chop off twice that much.

They used varying amounts of water in these tests, from ¼ to 8 cups. They found that they scorched or browned the potatoes if they used less than ⅔ of a cup of water. With that amount, the potatoes were just as good as those boiled violently in a kettleful.

For our family of three, ½ cup

of water is plenty. I put it into a thick, heavy aluminum pan, and bring it to a boil. Then I put the potatoes in and leave the burner on high for about five minutes after the steam has begun to roll out under the heavy cover. Then I turn the burner on low for twenty minutes, and off for the last five minutes before I take the potatoes off.

Sometimes when Dorothy gets dinner, she starts the potatoes off all right, but forgets to turn the burner down. This leads to certain disaster, for the intense heat boils all the water away, and burns the potatoes before she thinks of them.

A little experimenting with your own potato kettle will quickly show you how much water you actually need, and just how long it takes to bring the amount of potatoes you use to a boil, and to get them done. When you have once established those points, making use of them to conserve your kilowatts is only a matter of habit.

* * *

Washing Bedding

One of these bright sunny mornings when a little wind is blowing briskly over the hill, I'll be saying to my family as I pour a second cup of coffee, "I guess I'll start washing the bedding this morning. It looks like a good drying day."

And the very same idea will be occurring to hundreds of you who pause for a minute on your kitchen steps and drink in the sunshine. There are a good many of you who have new washing machines this spring, so you will be doing up your blankets and pillows by electricity this time.

I hope you have kept watch of the laundry studies made by the home economics specialists of our universities, and by the laboratories of our woman's magazines. They make this job of doing up the bedding simple and effective.

I used to blunder away at washing my woolen blankets at a terrible expense of raw knuckles and weary arms. I had a husband in the navy, and he taught me the navy method of doing blankets, rubbing soap patiently into every inch of them, then sozzling them up and down, up and down, in the warm suds until the soap and dirt came out together.

But the bride of today whose mother "would rather do it herself than have the girls messing around," and the bride who has always worked outside the home, together with any housewife with

new equipment can learn the most modern and efficient way, simply by the asking.

But if you should suddenly decide you want to take advantage of a warm sun and a brisk breeze one of these April days, you won't have time to write in. That is why I have gathered up from various sources authoritative recommendations for this business of washing and family bedding. If you follow them, your blankets will not shrink, nor will they grow harsh and hard. They will come from the line as soft and fluffy as they were when they went into the machine.

First you need a mild soap made into jelly for your suds. Then you need a tub of luke warm water, 90-100°. If you run the machine for a minute or two before you put the blankets in, you will whip up a good suds.

Some manufacturers tell you to wash your blankets ten minutes.

The Modern Farmer "Turns a Switch"

The New Majestic

Combined Electric RADIO AND PHONOGRAPH

You modern farmers turn a switch for lowered costs of farming—*and* heightened enjoyment. Thousands of you already know the marvels of the new Majestic Combined Electric Radio and Phonograph. A dial's turn—radio or phonograph! Simplicity. Selectivity. Quality.

Cabinet beautifully matched burl walnut. Three stages of tuned radio frequency amplification. Last stage uses two type 250 power tubes. Electric phonograph—with Majestic electric pick-up and electric motor-driven turntable. Phonograph switch combined with main tuning control. Volume control on front of set controls both radio and phonograph ..... **$265.00** Less Tubes

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5801 Dickens Avenue Chicago, Illinois

Tune in Majestic Theatre of the Air. Over Columbia Broadcasting System every Sunday Night, 9 to 10 Eastern Standard Time . . . headliners of the stage and screen.

My neighbor on the hill runs her machine twenty; the bride across the road says eight is enough for hers.

I can't see that anyone can tell us that exactly for our machines or our bedding. We run them till the blankets are clean, of course, whether it takes five minutes or fifteen. But blankets that have seen extra hard use, blankets from the boy's beds, or blankets in from a camping trip may have to go through a second washing in fresh suds to get the dirt out.

After that run them through two clear rinse waters at the same temperature as the first.

Loosen the wringer rolls, so the blankets can go through without being twisted or strained.

If you haven't soft water, add

just a little soap to each rinse water. They tell me that keeps the minerals in the hard water from making the woolly fibers harsh.

The blankets go on the line with the weight equally adjusted on each side. Then the wind and the sun take over the job, and whip them dry and fluffy and sweet long before night.

Next come the pillows, and these, if they are ordinary bed size, must go into the washer one at a time. They and the woolen or down comforters should have water at about 100-110°, moderately warm. If the comforters are particularly soiled at the top and bottom, they will need a little liquid soap rubbed in with a soft brush before they go into the washer.

These, too, should be rinsed at least twice in clear warm water at the temperature of the first washing.

While the pillows or comforters are drying, it is well to change them about and shake them frequently to fluff them up and to keep the filling from lumping together.

* * *

"Journey" Cake

Last August we stopped the flivver in front of the house of some friends of ours in Rhode Island. Of course they urged us to come in and bide the night. Before long we women had gravitated to the kitchen and the men were out at the barns. As our hostess bustled about she said, "I am a little low on bread. Do you think you would like Johnny cake?"

"Oh, yes," I answered promptly. We are very fond of Johnny cake."

"But I wonder whether you know our Rhode Island variety."

"Why, isn't it just like any other?" I asked in surprise.

"No, not at all. We'll try it. If you don't like it, you can eat the bread. We are very fond of it.

The making was simple enough. She poured scalding hot water onto a quart of corn meal, generously salted, beating the mixture vigorously. She stopped pouring when the dough was still stiff enough to stand alone. Then she dropped large spoonfuls of it on a piping hot griddle and fried it on both sides. It was remarkably good.

"You know," she told us while we were eating this new bread, "'Johnny cake' is really a corruption of 'journey cake'. Its history goes back to pre-Revolutionary days. Every Rhode Islander thinks it was his great-great-great grandfather who made the first one. Tradition has it that a group of early explorers sent out from one of the settlements had grown weary of the monotony of their

(*Continued on page* 40)

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COMPLETE WATER SYSTEMS *as low as*

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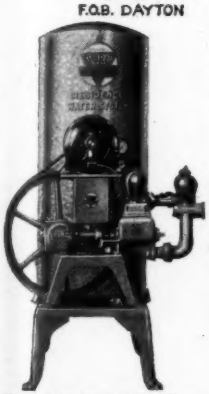

Duro Vertitank Unit System for shallow wells.

There's a wonderful little mother on a farm in Iowa who is the happiest woman in the world! Now, water in abundance is hers at the turn of a faucet. And water under pressure has brought a gleaming bathroom into her home. What joy! What comfort! Gone are the weary days when the water had to be pumped and carried. And, as in thousands of other farms, Duro has replaced the lines of care into smiles of *real living* on the sweet face of this little mother in Iowa.

If the most wonderful woman in all the world is still pumping and carrying water on your farm, why not see about getting that Duro Water System now? It's *easy* to own a Duro. You can buy a complete Duro Water System for a small down payment and then regular easy payments. The nearest Duro dealer or factory representative will advise you and estimate on your requirements.

Send in coupon below for complete information on Duro Water Systems

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Please send me full information on Duro Water Systems, and free advisory service on my requirements.

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A New Electric Hoist

By O. E. ROBEY,
Agriculture Engr. Dept. Michigan State College

THE convenience and economy of the electric motor in hoisting hay has been demonstrated many times. The usual practice has been to attach a motor to a single drum or two-drum hoist which simply winds up the ropes ordinarily used in a horse-operated outfit.

Experimental work has been carried on in the design and construction of a hoist made on an entirely different principle. This hoist works much like a traveling crane used in industrial plants. A special hay carrier has been built and fitted with a motor and the necessary hoisting and traveling drums. This carrier fits the standard hay track. A special switch has been designed for controlling the motor. It is so arranged that all the operations—hoisting, lowering, traveling to and from either end of the barn—can be controlled by a drop cord fitted with a single push button.

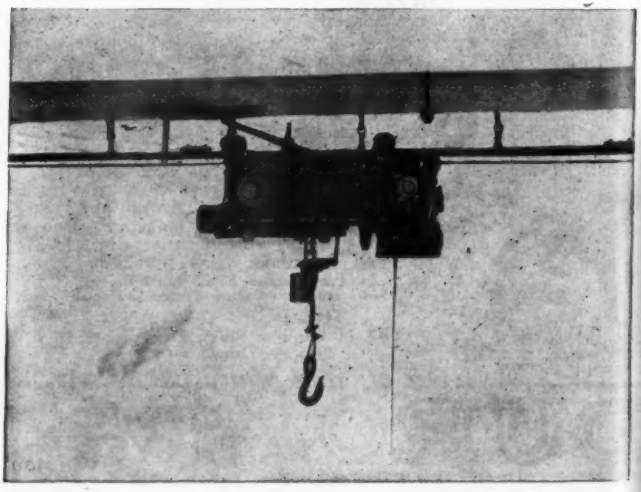
The hoist is being designed so that a one-horse motor will lift a thousand pound load and still have reserve power for emergency.

This hoist will be suitable for a number of purposes:

1. Unloading hay and grain from the wagon into the mow.
2. Taking the hay or grain from the mow for feeding or threshing purposes
3. As a litter carrier or feed car.
4. For transporting feed or other material from one barn or building to another.
5. For industrial purposes.
6. For butchering, lifting machinery, and other purposes that a hoist can be used for around the farm.

As this hoist is especially adapted to take hay from the mow, its

(*Continued on page* 34)



Electric hay hoist developed by the Agricultural Engineering Department of Michigan State College.

De Laval

Now Offers

2 New Milkers

and

2 Lines of Separators

—all can be electrically operated

DE LAVAL now offers to dairymen two new milkers and two lines of separators—the finest machines of their kind that have ever been built.

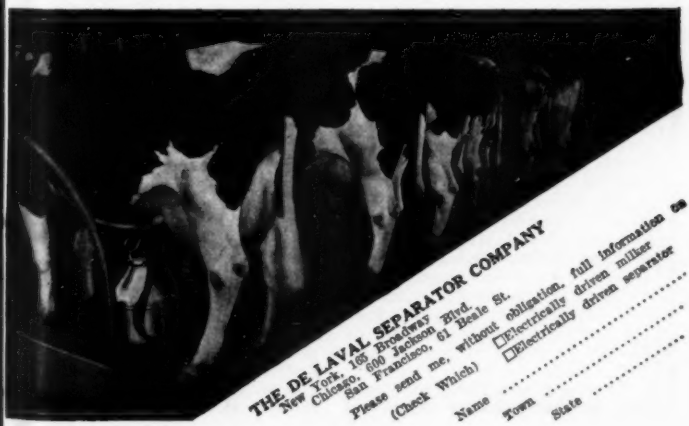
The new "Magnetic" Milker, employing electro-magnetic pulsation control, is supplied in outfits for milking from one to a thousand or more cows. It retains the well-known De Laval principles of milking, though even more pronounced and efficient. Perfect milking, less power to operate, simplified installation and easier handling are among its outstanding features. (The magnetic impulses are independent of power used.)

The new "Utility" Milker is intended for the smaller herd owner to whom first cost is of prime importance. It performs a job of milking second only to the "Magnetic" and is the leader of the lower price field.

The "Golden" Series Separator continues as the world's greatest separator, establishing a standard that it has been impossible to improve.

An additional line of De Laval quality separators but of a lower price, known as the "Utility" Series, is receiving attention everywhere. The "Utility" Separator is mechanically the counterpart of the "Golden" Series, lacking only certain exterior features that have nothing to do with its skimming efficiency, durability or operation.

These De Laval machines are efficient time and labor savers, drudgery removers and profit makers. All may be equipped for efficient, economical operation by electricity. Ask your local De Laval dealer about them.



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(Check Which) ☐Electrically driven milker
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Name .....

Town ..... State .....

Spare the Brooder

(*Continued from page* 12)

be enclosed or protected so that neither the chicks nor the operator can get a shock by touching it. Enclosing the heating element also makes the brooder practically fireproof.

And there must be a lot of it. You cannot supply enough heat with a few lamps.

"I am glad to learn that these new brooders are getting a bigger current capacity," said Mr. Art Karow, another successful hatchery man at De Forest. "They have to be big enough to supply plenty of heat for some of the cold nights of early spring. It's a whole lot better to have a little extra heating capacity and never have to use it, than it is to lack a little on one or two nights and let the chicks get chilled.

"It's the same as with your car. You want plenty of power for mud holes, snowdrifts and bad hills, but you don't use it all very often."

Cheaply made, inadequate brooders are on the market, but it is false economy to invest in them, to save on the brooder and spoil the chicks.

"Of course in every good electric brooder," continued Mr. Karow, "the thermostat takes care of using the heating capacity when cold weather makes it necessary, and of shutting off the brooder and saving current when it is warm enough."

A thermostat is much simpler than its name indicates. It is really nothing but a switch that starts and stops the current flowing through the heating wires of the brooder. But it is arranged so that the heat itself operates the switch. When it gets just so warm under the brooder, the switch opens and stops the heating. When it cools off a little the switch closes and the current flows again.

"With our changeable weather," said Mr. Karow, "it would keep one running to the brooder all the time if he didn't have a thermostat."

To save as much heat and therefore as much electric current as possible, the insulation of the electric brooder is also important. A single layer of thin asbestos paper pasted to the metal canopy is not enough. It will pay to choose a brooder with much thicker insulation. An air chamber in the top of the brooder will also help save current.

Electric Wiring

(*Continued from page* 17)

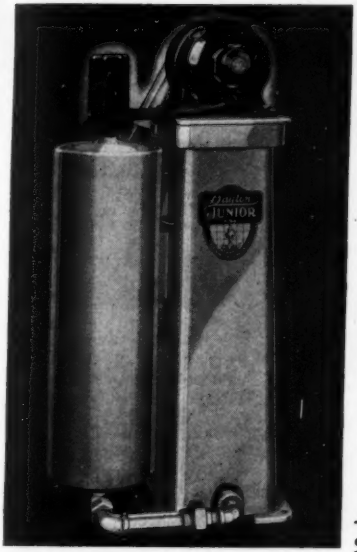
electrical storm might blow out your transformer, or that a bad windstorm might cause the high tension wires to swing against your low tension wires. The wires that supply your buildings would then carry the high voltage from the outside lines, and if this condition did not correct itself a very serious danger to life and also a considerable fire risk would exist.

By grounding one side of your circuit, this high tension current, if it ever does become accidentally inflicted on your system, is carried directly to the ground, thereby blowing fuses and automatically notifying you of the contact between the two systems.

The whole purpose of grounding is to obviate this one danger, which is rarely experienced.

It is quite possible for high voltage to exist on the farm wiring system without danger to life until someone touches the wires and at the same time touches something which is connected to ground and consequently to the other side of the high tension circuit. It is important that the grounded side of the house circuit shall be well connected electrically to pipes or wires which are connected with the ground. Connection to the pipes of a water system is usually all that is necessary to provide an adequate ground.

It is possible that the National Code, which is now being re-written, will provide for other systems of wiring such as have been used for a great many years in Europe and have there been found to be entirely safe and adequate. One is quite safe in adopting any system approved by the Code and by his contractor.



This is the DAYTON Junior "Freshflo" Deep Well Pump for use where depth to water exceeds 22 ft. Pumps 90 to 462 gallons per hour. There are other DAYTON models for deep and for shallow wells.

If Your Well Is Deep..

A DAYTON System will lift all the water you can use—at trifling cost. It will make possible all of the comforts—all of the time-saving conveniences you have wished for. Running water at the kitchen sink—a modern bathroom with standard fixtures—convenient faucets in barns and outbuildings—water wherever you want it—plenty of it, fresh from your well, spring or stream. And never a pailful to pump or carry! Your DAYTON System will maintain a constant pressure, starting and stopping itself. It is quiet, trouble-free, self-oiling, and operates at a cost of only a few cents a day.

DAYTON Water Systems are built by pump specialists. They are designed to operate with a minimum of attention over a long period of years. Both shallow and deep well models in many sizes. The prices are lower than you would expect for such a perfect piece of mechanism. Write for complete information.

Pioneer Manufacturers of Private Water Systems

The Dayton Pump & Mfg. Co. Dayton, Ohio

Dayton WATER Systems

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Please send me complete information and prices on DAYTON Water Systems

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.....

MAKE THE *WATER* DO THE RUNNING

Making The Hand Sprayer Earn Its Keep

By J. C. SCOTT,
Agriculturist

"I HAVE seen nothing in a long time that relieves poultrymen of a lot of hard work like the small electric hand sprayer," said a Washington poultryman recently, in speaking about the benefits of electricity on the farm.

"We poultrymen realize sometimes that the roosts should be sprayed and the sheds should be disinfected, but when the spray has to be put on by a hand pump, it is hard work, and, to be real frank, isn't done as frequently as it should be.

"The electric sprayer not only relieves a person of hand work, but it is a real nice sort of a plaything, and we find that our buildings are kept in better shape and the poultry freer from lice since the electric hand sprayer came on to the ranch."

Many poultrymen and farmers in Washington are finding that the work of several men can easily be done by one man spraying and disinfecting the chicken houses and roosts with this handy sprayer.

A long extension cord will permit the gardener and florist to spray the garden, bushes, shrubs, trees and flowers with ease.

It is handy, rapid and effective for keeping flies and insect pests from livestock.

Much time and labor can be reduced in putting on paints, lacquers, bronzes, aluminum paints and light enamels. The work can be done very quickly and easily by an inexperienced painter. In fact, it will do the work of five men using the brush method, and gives a finished paint job without brush marks or uneven coating. Chairs, tables, inside or outside walls and floors, also iron and metal work, can be finished bright and cheerful in appearance. On account of the fumes often present it is best to do this work in a well ventilated room.

This sprayer is operated by attaching a drop cord to any ordinary light socket on a 110 volt line.

* * *

Electric Hot Water

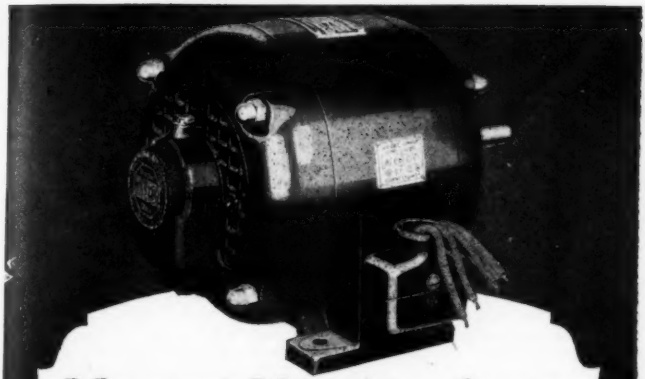
By J. R. POTEAT

To those customers served by the rural lines of the power companies, electricity is the new "rubbing stone" which is demonstrating its versatility every day. Called upon originally to flood the long winter evenings with daylight and to pump the water from the well, it is now assuming jobs as varied as they are numerous,—from hatching chickens to cooking them, from milking cows to feeding them, from ventilating the barns to cooling the milk, from sprouting grain to threshing it, from freezing to broiling meats—and a host of other interesting and profitable operations.

And now the farmer is calling on this "jack of all trades" to heat his water—to serve his milk house, to wash his clothes, to provide his baths and to serve the many uses to which hot water is a modern necessity. And as with everything about which information has not been widely circulated, the first reaction to the thought of electric hot water is one of inquiry. "Will it work?" "Can I count on it?" "Is it safe and dependable?" Electric water heaters have been manufactured and in use almost as long as automobiles, so enough time has passed to work out most of the "bugs." A considerable number of manufacturers are making electric water heaters embodying various features, so that the electric water heater is a well established and competitive article of commerce.

But the question comes up—what kind of an electric water heating system should be installed? A considerable number of farm installations have been made within the last two or three years with the object of determining which type of service will best meet the varying needs for hot water. The amount of hot water for various uses has

(*Continued on page* 38)



Master Motors *do an amazing amount of* Farm Work

Whatever their task may be—they perform it faithfully and well, for Master Motors are built to provide dependable, trouble-free service.

The Master Portable Farm Motor will fill your silo, operate your corn sheller, and perform many other farm chores at a low cost.

Master Guaranteed Motors—Master Portable Farm Motors and Master Grinders and Buffers can be used in many labor and time-saving ways.

Write today for full information.

THE MASTER ELECTRIC COMPANY
DAYTON, OHIO

STOCKS CARRIED IN PRINCIPAL CITIES
More Than 70 Service Stations
MASTER GUARANTEED MOTORS
1/20 TO 10 H.P. Dayton THE MASTER ELECTRIC CO. Ohio Less than 40°

Grain Grinding

(*Continued from page 22*)

stallation of a small burr mill on one of the dairy farms of the Mason-Dansville Experimental Line. The mill is operated by a one horse-power single phase motor, 220-volts. The drive pulley on the mill is 14", on the motor 3½". The grain is fed by gravity to the mill and thence to a small storage bin in the feed alley. A small door closes the opening through which the mill is seen enclosing the mill in a dust tight space. On this same farm, lamb feeding is pursued during the winter months and grain is purchased in carload lots. This grain is all stored in elevated bins, and the same one horse-power motor used for grinding is employed to operate the two-belt bucket elevators used in elevating the grain.

Figure No. 3 is the diagram of the installation. The auger con-

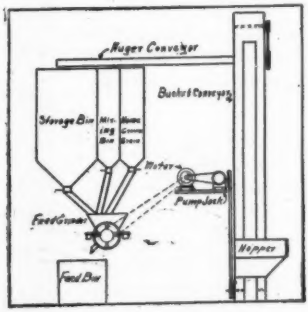


Fig. 3. Diagrammatic explanation of Figure 2. Multiple uses of one motor reduce operating costs.

veyor conveys grain to either bin as desired. The large bin has a capacity of three carloads used for sheep feeding. The two small bins store grain for the dairy cows. With this system through each leg of the elevator different grain can be elevated. at the same time. The grain is then mixed by the auger distributor ready for grinding. Ordinarily belt conveyor elevators are driven from the top pulley, but in this instance, in order to eliminate a long belt or the necessity for a second motor, the first elevator is driven from the bottom pulley. A worm drive jump jack with a speed reduction of 16 to 1 is used to get the proper reduction in speed between the motor and the elevator. The upper pulley of the first elevator in turn drives the shaft and upper pulley of the second elevator. No difference in slippage of either belt has been apparent.

In grinding with the burr mill, care must be taken that the mill does not run idle and that all bits of metal are removed from the grain before it enters the burrs; this can be done by installing magnets in the feed line. The cost of operating the burr mill is dependent upon the sharpness of the burrs; very dull burrs result in too high a cost. The capacity of this mill is about 100 pounds per hour of oats and barley ground medium fine. The capacity of the elevator is 2½ bushels per minute. Recently a carload of grain weighing 30 tons was elevated at a cost of 39 cents (current at 3 cents a kilowatt hour).

Electric Hay Hoist

(*Continued from page 28*)

usefulness will extend over the entire year. With the single switch control in the operator's hand, it becomes possible to use the hoist as an elevator and by adding a seat to the elevating cable the operator can ride up into the mow and down again. This will save much labor in climbing ladders.

Since the hoist can travel on either a straight or curved track or up and down one that is inclined, it will have many possibilities. One possibility on an inclined track would be the loading of manure directly into the spreader from the pit.

Due to its adaptability to various jobs, it may find almost daily uses on a good many farms.

The mechanical features of the hoist have been developed. Additional tests will be made and a few refinements added before the full details of the design are released.

THE MODERN FARM HOME HAS RUNNING WATER

And the selection of a pump or water system is of utmost importance, if you are to derive the greatest benefit and help from its installation. Experience has shown that it is poor economy to buy a pump too small for the maximum duties about the premises. Many modern country homes are now equipped with two automatic electric systems—one for soft water under pressure, for bath room and other general use about the home and tenant house—the other for spring or well water for barn, stock and houses.

Also a vital factor in satisfactory trouble-free service and low maintenance cost, is a pump mechanically suitable for the most exacting requirements. The Burks Super Turbine is such a pump. Expert engineers have told us it is mechanically perfect. Has only one moving part—no friction bearing surfaces to wear, cause grief, necessitate replacement and expense—in fact there is no metal to metal contact of moving parts and ***therefore no wear.*** This wonderful piece of essential farm equipment is durable, reliable and efficient to the extreme.

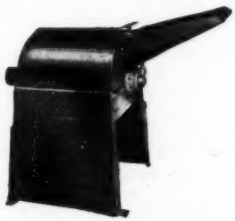
BURKS SUPER-TURBINE PUMPS
Only one moving part
"A Life Time of SERVICE"

DECATUR PUMP COMPANY
Decatur, Illinois

Please send me descriptive literature on Burks Super Turbine Pumps.

Name .....

Address .....



PRATER MILL

(Hammer Type)

5 Horse-power

$75.00

Save Money!

Grind Feed at Home

Will grind grain and roughages to any fineness. Will crack corn or grind oats fine for poultry mash.

Equipped with an automatic feeder for all small grains. Five H.P. Prater Mill is large enough for the largest farm.

Write for free catalog, or see your local dealer or power company.

PRATER PULVERIZER COMPANY
817 West Washington Blvd.
Dept. K **Chicago, Ill.**

Cover Title Contest Rules

Again $50 in Prizes

Every farm family getting this little magazine can now enter these contests for guessing the front cover title, which have become so popular.

You need only fill out the form below or if you don't want to tear the magazine, you can make out your own form on a separate sheet of paper, writing on one side only.

In addition to the $25 cash prize for the best title to this month's front cover, we will pay $5 for each of five titles given honorable mention. The winners will be announced in the June issue.

Here are the rules:

1. **Only farmers or members of the farm family receiving this magazine are eligible.**
2. **Only one title may be submitted.**
3. **Use the form below or write your answers on a plain sheet of paper in similar form.**
4. **Be sure to vote on questions (a) and (b).**
5. **Write plainly and send your suggestion to Title Editor, ELECTRICITY ON THE FARM, 225 West 34th St., New York, before May 1.**

My Title for April cover picture is.....

.....

.....

.....

(a) The most useful electrified devices we now have are:

.....

.....

.....

(b) We hope to have sometime:

1st .....

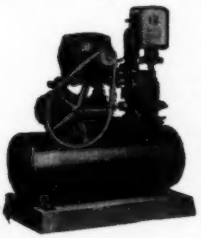
2nd .....

3rd .....

Name .....

Address .....

Here's the greatest
Water System
value ever offered



The New
DELCO WATERBOY
WATER BY WIRE
only $75

THINK of a Water System, backed by General Motors, costing only $75 f.o.b. Dayton. Here it is...the new Delco Waterboy...with a full 225 gallon-per-hour capacity. This is the most sensational pump value ever offered...one of the finest water systems in the world at the price of a "cheap pump."

And you can buy the new Waterboy on such easy General Motors terms that it will repay its entire cost while you are paying for it.

The Waterboy has the same type V-belt used on General Motors cars. You never have to give the Waterboy a thought. It is built strong and substantial like a steel bridge. This is just one of the sensational values offered in the complete Delco line. And it operates for just a few cents a day. Get all the facts. Write today for our new literature.

DELCO-LIGHT COMPANY
Subsidiary of General Motors Corporation
Dept. P-92 Dayton, Ohio

DELCO ELECTRIC WATER SYSTEMS
PRODUCTS OF GENERAL MOTORS
Also Manufacturers of Delco-Light Electric Power and Light Plants

5 Horse Power Century Type RS Repulsion Start Induction Single Phase Motor

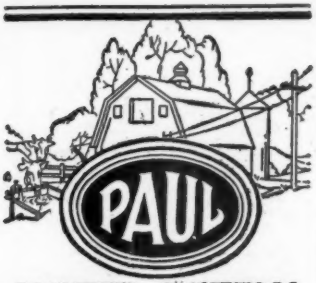
Proven Reliability

The proven reliability of Century Single Phase Motors makes them especially suited for operating many types of farm equipment. Their "Keepa-Running" ability is backed by more than 25 successful years of motor-building experience.

CENTURY ELECTRIC CO.
1806 Pine St. St. Louis, Mo.

40 U. S. and Canadian stock points and more than 75 outside thereof.

Century MOTORS



WATER SYSTEMS
Increase Farm Profits!

A LITTLE Paul electric pump will deliver *more water for a cent than a man can pump and carry in an hour.* Plenty of fresh, clean, cool water for kitchen, dairy and barn! *What a relief from back-breaking labor!* Facts prove, too, that ample water supply greatly increases profits from live stock, dairy and poultry.

If you do not have an efficient water system, you are not getting the most from farm electricity. Write us today!

FORT WAYNE ENGINEERING & MFG. COMPANY
FORT WAYNE INDIANA
Pumps & Water Systems, Softeners, Heaters

Fort Wayne Engineering & Mfg. Co.,
1722 N. Harrison St.-Fort Wayne, Ind.
Send complete information and prices on Paul Water Systems.

*Name*_____

*Address*_____

Electric Hot Water

(*Continued from page* 32)

also been studied. The net result of all of this serious study and testing, points to the desirability of separating the household hot water needs from the farmyard needs in considering the proper kind of heating equipment.

A heater which by the turn of a switch will provide the amount of hot water necessary for the particular operation involved, and which will maintain the temperature of the water uniformily at 130, 150, 180° or whatever temperature has been fixed for the operation, and which will be either automatically or manually switched off, is the type of heater best adapted to most farm conditions. When dish washing is to be done, turn on the heater as the meal is served and the water will be ready when the dishes are. When hot water to wash milking equipment is necessary, turn on the heater a sufficient time before milking and the hot water will be ready when needed.

Electric Farm Alarm

FOUR purpose alarm, warns you in case of burglary, fire, failure of highline current or change in brooder temperature. Protects one or all buildings.

Uses dry cells or highline current. Closed circuit principle —rings if wires are cut, shorted or tampered with. Cannot be beaten in any known way. No buried wires—simple to install and economical to operate.

Sold under money-back guarantee.

SAFEGUARD ALARM CO., INC.,
Council Bluffs, Iowa

FREEZ-E-Z
Ice Cream Freezer

Pure, rich ice cream at home when you want it. No work turning a freezer if you have a modern washing machine.

See your nearest washing machine dealer or write.

COLE MANUFACTURING CO.
BIRMINGHAM, ALA.

Here's the Winning Cover Title for February

"Electricity accounts for
Dad's broad grin,
No battery trouble when
tunin' in."

Mrs. Carl H. Miller
R. 1, Monroe, Mich.

AND the following deserve special commendation:

"The farmer finishes his daily labors, And tunes in on his Broadway neighbors," Mrs. B. S. Cork, R. 3, Texarkana, Tex.; "Radio Radiates Radiance!", Miss Mabel Gillespie, Gretna, Nebr.; "Out of the dark come light and song, Electricity is the boss that sends it along," Mrs. John Marvin, R. 4, Berlin, Wisc.; "Watt at night, Brings radio delight," Mrs. Rose Norman, Meridian, Idaho; "Electric radio and electric light, Brings lots of joy to the farmer's night," Mrs. E. E. Chandler, Elgin, Oreg.; "Dad's radio is 'electrified', That's why he listens with pride," Miss Mary Rinke, Townline Road, Utica, Mich.; "The electric radio make his pipe dreams a reality," Mrs. F. J. Higgins, Twin Bluffs, Wisc.; "With the radio set electrified, The best in the world is at his side," Mrs. Fred. N. Waterman, Brooklyn, Mich.; "An electric radio and a corn cob pipe, Would fill any farmer's heart with delight," Mrs. Rena Krzyszke, New Boston, Mich.; "The radio set electrified, Is radio joy multiplied," F. E. Matzke, Juda, Wisc.; "Folks, 'there's music in the air', And son, we'll see the singers there," John Costigan, Ottawa, Kans.; "The electric radio brings the city minstrel show, To cheer the lonely farmer when the roads are blocked with snow," L. E. Hopkins, Ripley, N. Y.

Equipped with gas engine for homes without electricity

Now

a Washing and Ironing Machine Combined

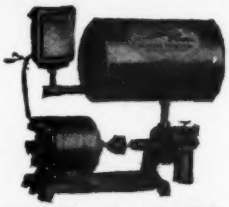
At a price formerly asked for a washing machine alone

WOMEN on the farms—you can now be rid of the drudgery of both washing and ironing, and pay no more than you have been asked for a good washing machine.

The Hurley Machine Company has just perfected this complete laundry unit—the first and only machine of its kind. It combines the Thor Agitator—world's most thorough and efficient speed-type washer—with the New Thor Rotary Iron, that does your ironing in one-fifth the time required by hand.

The Thor name on this new laundry unit is your assurance of lasting satisfaction. Write us for illustrated booklets describing this and other Thor home laundry equipment.

THE HURLEY MACHINE CO.
22nd Street and 54th Avenue
Dept. B Chicago, Ill.



ONLY $58

for the completely automatic water system shown here. Ideal for shallow wells and cisterns where water is within 22 ft. of the surface. Only two moving parts.

Many other sizes and styles of water systems, also septic tanks, water softeners, stock drinking cups, etc. Write for complete descriptive literature.

MILWAUKEE AIR POWER PUMP COMPANY

6 Keefe Ave., Milwaukee, Wis.

"Journey" Cake

(*Continued from page* 26)

fare, and were complaining fretfully over it. One of the men said that he would bake them a cake. So when they made their fire that night, he mixed the first journey cake and baked it for them on a hot stove before a heap of glowing coals."

My family have adopted it whole heartedly, and I find that it is as good for western stay-at-homes, as it was for those early Rhode Island travellers.

Hilton Farm Dairy

(*Continued from page* 14)

operates the pasterurizer that is held in reserve against an emergency, but is not ordinarily used for the certified product.

In the house the refrigerator has been followed by a central vacuum cleaning system, by automatic heat control, and by the charger for the radio battery.

SMITH BROTHERS

Electric BROODER

For the sixth successive year the marvel of the brooding world. Owners claim it "world's best brooder."

Raises 5% to 20% More Chicks

Exclusive patented features. Saves time. Saves labor. Ends fire risks. Clean, economical. Automatic heat control. Gives long, satisfactory service. Get yours NOW at local hatchery, electrical store, or from us.

Select your Brooder from this list

18 in.	75 chick size,	$9.50
24 in.	100 chick size,	12.00
32 in.	200 chick size,	16.00
42 in.	350 chick size,	20.00
56 in.	600 chick size,	24.00
72 in.	1000 chick size,	36.00

Ask your Power Co. for information or use coupon:

WELLINGTON J. SMITH CO., 600-A
Davis-Farley Bldg., Cleveland, Ohio.

☐ Enclosed is $.... for .... (quantity) ..... (size) Smith Brothers Electric Brooder.

☐ Send Free Folder.

Name .....

Address .....

Clean Stock Is Healthier

Use a GILLETTE Portable Electric Clipping and Grooming Machine to keep your stock clean and healthy. Operates on the light circuit furnished by any Electric Light & Power Co., or any make of Farm Lighting Plant.

Price List on Request

Gillette Clipping Machine Co., Inc.
129 West 31st Street, Dept. 11,
New York City

CLASSIFIED ADVERTISING

INVESTIGATE the proven records of economical operation and success of the LYON IMPROVED ELECTRIC BROODERS. Send for free authentic information and reports on electric brooding. Also ALARMS, Power-off, Temperature, Burglar, Heating & Thermostatic Supplies. Interesting circulars on modern poultry equipment upon request. Lyon Electric Co., Dept. FF, Box 1436, San Diego, Calif.

FOR SALE—New Lighting Equipment designs now ready. All modern decorative effects at Reasonable Prices. Mail layout of rooms and we will submit free suggestions with our latest catalog. "Rural Homes Dept." CHAPMAN LIGHTING STUDIOS, 640 West Lake St., Chicago.

There is no substitute for
ROLLER BEARINGS
an exclusive feature of the genuine "BEVAN" Pump Jack

That is one reason why this electric pumping unit is installed on so many farms, to handle this back-breaking job so cheaply, so quietly, for so many years.

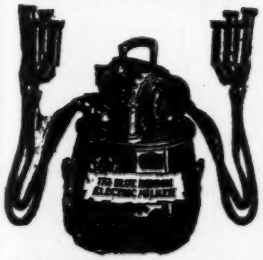
In the BEVAN Jack you also get a patented method of applying the electric power through a walking beam that gives extra long leverage on the lifting stroke. With a genuine BEVAN jack of this design, a ¾ H.P. motor is ample to pump a 100 ft. well.

Your best purchase for wells down to 500 ft.

Patented

Made *only* by
ACME MACHINE COMPANY
2901 Fremont Ave., So.,
Minneapolis, Minn.
Write for April price sheet

Blue Ribbon Electric Milker



A Portable Milker Requiring No Installation

The "Blue Ribbon" is a self-contained milker, requiring no pipe lines or extra equipment of any kind. It operates direct from the light socket of either high line or farm light plant. A beautiful catalog and complete information will be sent on request. Write us today.

Electric Products Corporation
7 Bluff Ave., La Grange, Ill.

Complete Haven installation with all-steel insulated tank.

The *Original* Immersed Type Farm Milk Cooling System

As originators of immersed type milk cooling with electric refrigerating machinery, we have developed the Haven System to a maximum degree of simplicity and efficiency.

The Haven Machine can be used for dry storage of either bottled or bulk milk, (with or without surface coolers). Supplied with or without tanks, as desired.

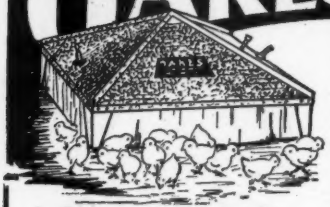
Suitable for a range of capacities, to take care of the requirements of the smallest to the largest farm demands.

Write for Bulletin "B" which describes the Haven Farm Milk Cooling System in detail.

(A few good dealer territories still open)

HAVEN MANUFACTURING CO.
Milwaukee, Wis.

OAKES ELECTRIC BROODERS



Economical Automatic Fumeless—Safe and Sure

Oakes Electric Brooders are made in the following four sizes:

Cat. No.	Size	Chick Capac.	Wt.	Each
G-90	22-in.	100	15 lbs.	$10.50
G-91	32-in.	250	35 lbs.	16.00
G-92	42-in.	425	70 lbs.	20.00
G-920	52-in.	650	100 lbs.	24.00

Canopy and legs are built of heavy, durable galvanized steel. Heat loss is practically eliminated by using Insulite and Celotex insulation in the top.

THE SURE, EASY WAY TO RAISE HEALTHY CHICKS

Here's the latest, most economical brooder for raising flocks of from 100 to 650 strong, healthy chicks. Proper temperature is automatically maintained by fool-proof thermostat and heat evenly distributed under entire canopy. There are no lamps or stoves under the canopy to use up space, crowd chicks or cause a fire. Brooder is quickly installed by plugging cord into light socket and adjusting thermostat switch for desired temperature.

[You can get Oakes Electric Brooders from your local electric appliance dealer, public utility company or poultry supply dealer. Write us direct for descriptive literature.]

OAKES MFG. CO., 77 Dearborn St., Tipton, Ind.

LAUSON Water Systems

The Electric Jack

Will convert your ordinary pump into a supply-unit, controllable from the house, that will deliver all the water wanted—deep or shallow well.

Built Like a High Grade Transmission

Machine cut hardened gears, fully enclosed, running in oil. No chains or sprockets—high grade motor.

The Pumping Head

A neat, sturdy job in all customary variations, specially designed for use with the Lauson Jack.

Write for Special Literature

The John Lauson Mfg. Co. 700 Michigan St. New Holstein, Wis.